Nasties On the Net: Media Hype or Major Concern for Schools?

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Introduction

This chapter will examine some of the major management issues relating to the provision of Internet access to students in schools. Should schools consider the use of intelligent software filters (filtering software), acceptable use policies (AUPs), or other mechanisms to limit students' access to the Internet? Where does the responsibility for such actions lie? Is the Internet really the hot-bed of unsavoury material the media will have us believe, or are the isolated bomb-making and paedophile-related incidents pounced on by the media merely part of the hype surrounding the Internet? These are some of the questions that this chapter will attempt, at least in part, to address. In particular, implications for the role of the teacher-librarian as the school's information expert in these matters, will be considered.

Adapeted from Dillon, K. (1997). Paper presented at 1st National Conference of the Australian Association for the Teaching of English, Australian Literacy Educators' Association, and the Australian School Library Association, Darwin, NT. Reprinted with permission of the author.

The role of the teacher-librarian in a networked information environment differs radically from the traditional role to which school library users have become accustomed. The fundamental role of the teacher-librarian in a networked school should not change from meeting the information needs of users and facilitating information literacy development. What will change is how information services are provided, the nature of the collaborations between teachers and teacher-librarians, and how information as a strategic resource in schools is managed. Like information technology (IT) literate classroom teachers, teacher-librarians will increasingly become the "guide on the side" rather than the "sage on the stage." At the same time, the function of the school library will also gradually shift from "just-in-case" storehouses of information to "just-in-time" suppliers of information: "wherehouses" rather than "warehouses."

As part of the rethinking associated with the changing role of the teacher-librarian, some commentators have foreshadowed a change of nomenclature from *teacher-librarian* with responsibility for the school library program to, for example, *information services facilitator* or *director of information services* with whole-school responsibility for an "information services centre" or "information services unit," or similar (Barron, 1995; Hay & Kallenberger, 1996; Ohlrich, 1996). The reasons proffered for this shift in emphasis by its supporters vary, but ostensibly the basis of such a move lies in the need for 21st-century schools (like other information-based organisations) to be more efficient managers of information.

For example, Hay and Kallenberger (1996) caution that the creation of the position "director of information services" will result not merely from combining the roles of teacher-librarian and computer coordinator into one position of responsibility. In an informed school such a view is too narrow and does not take into account the need for management of information on a whole-school basis. A teacher-librarian or information technology studies coordinator might be part of the "information services unit"

along with others employed on either a full-time or part-time basis. For example, programmer, editor, computer technician, library technician, and so on—the mix would depend on the circumstances of the individual school. In fact, their model suggests that a complete rethinking of existing school structures and management practices is long overdue.

Student Use of the Internet

One of the main problems that members of many school communities envisage with Internet access is that of student access to unsavoury information, particularly pornographic and violent material. A second, perhaps even more disturbing problem relates to personal security of student users on the Internet. The potential for paedophiles, for example, to meet potential victims online in order to arrange real-time meetings is of particular concern. While such concerns are obviously valid, they need to be kept in perspective. Incidents of this nature sell newspapers and boost television news and current affairs ratings. We can be certain that the media relish these kinds of stories and, if coverage of them is not level-headed and responsible, the resultant media hype can be very damaging to proponents of Internet use in schools. Collins (1996), for example, asks,

> What is all the hype about child safety on the Internet? Where are the Internet victims we hear so much about? Of some 800,000 missing child reports in 1997 (in the U.S.), fewer than a dozen cases involved the Internet. Keep in mind that almost 10 times as many reports of missing children involved aliens or flying saucers. Like airplane crashes that make big headlines because they are so rare, finding an Internet victim is big news. And just like flying, there is some risk in using the Internet, but is it worth drastic changes in our schools?
>
> If not on the Internet, where are children victimized? Such crime is fairly evenly distributed around the child's home, friends' and relatives' homes, their schools, the playground, and the streets near their homes. If we are really concerned about child safety, we should get our children out of the

> schools, off the playgrounds and streets, and onto the Internet. It is by far the safest place in the world for a child to roam.

In short, it should be understood that it is an unfortunate fact of life that many of these unhappy incidents occur on a much more regular basis in real life. In most communities, exposure to pornographic and violent images, for example, is only as far away as the nearest newsagent or video outlet. At present, the degree of interactivity accorded by the Internet is nothing like that available from television, video, or even telephone. In this regard, the joint report from the Australian Broadcasting Authority (ABA) and the Office of Film and Literature Classification (1996) is of interest. The report recognises that it is not possible to exercise the same amount of control over online services as is possible with more traditional formats such as video. It makes recommendations about the desirability of an Australian "code of practice" for online services. Also known as the *Online Services Investigation*, the report is available on the ABA home page at http://www.aba.gov.au/what/online.olsfin.htm.

Proponents of Internet use in schools argue that there is a common misconception about the amount of controversial material on the Internet. Spalding, Gilding, and Patrick (1996) found that few schools reported incidents of students stumbling across pornography and the like. Ingvarson (1996) and his colleagues at schoolsNet, a Melbourne-based Internet Service Provider (ISP) specialising in education, set out to find out how much potentially controversial material was really out there:

> Hands up, all those who have looked for pornography on the Internet (many people have because of all the media attention on it). I thought I would find out. We have 27 years of Internet in our building and some of the best netsurfers around. So armed with keywords like nude, erotic, sex, bombs, and many more we set out on a 36-hour hunt for the dark side of the Internet. We searched over 11 million pages of the World Wide Web, gopher, and FTP. We found 3,136 sites which matched our key words. These were made up of a vast array of sites, including: magazines,

self-help pages, community information, and academic discussions. There were 45 indexes to other pornographic sites. These indexes proved to be very frustrating. On some of the lists more than 60% of the sites listed were either no longer available, required you to pay for the images, or just never respond. Of the others, many were slow, and the pictures were of poor quality and mainly of the nude titillation variety.

There was almost a sigh of relief when the first pictures of people having intercourse were uncovered—one site with more than 12 hard-core pictures. It was a number of hours until we found any more.

Out of the entire search, only eight sites were found which had pictures which would be considered as hard-core pornography—four of these sites had less than five pictures.

There were a considerable number of sex shops and phone-sex sites (which advertise traditional phone sex)—these would describe products and occasionally have crude selling lines. Most, however, had few erotic images at the site. Some would provide you with titillation of one image, and you would have to put in your credit card number to get any more pictures.

In total the number of sites that had considerable pornographic material freely available and easily accessible was less than 100. Out of 11,000,000, that is a percentage of 0.001.

Management of Student Access

There are a number of different techniques for managing student access to the Internet. In their study of selected Australian schools, Spalding, Gilding, and Patrick (1996, pp. xii–ix) identified the following "wide variety of mechanisms and arrangements to manage student access to the Internet":

- Organisational arrangements
  - supervision
  - signing a register before using a computer with Internet access
  - acceptable use policies (AUPs)
  - student contracts

- working with parents to develop shared responsibility, and
- placing reliance on student responsibility.

- Technological mechanisms
  - vetting material (e.g., incoming and outgoing e-mail)
  - using a specialist service provider who limits access to certain sites or newsgroups
  - restricting access to particular Internet tools (e.g., Internet Relay Chat, newsgroups)
  - blocking access to specific sites (either at school or service provider level)
  - downloading specific Internet information for student access (as opposed to allowing students direct access to the Internet)
  - keeping log files and running random checks of sites students have accessed, and
  - using filter software (these programs are relatively recent, have not been widely used in schools and are generally not regarded as sufficiently reliable for use as the main mechanism to control access to inappropriate material).

The two techniques that have attracted the most attention in schools are the use of intelligent software filters (filtering software) and acceptable use policies.

Intelligent Software Filters

There are a number of software packages specifically designed to limit student access to potentially controversial material on the Internet. Producers of software such as Surfwatch, CyberPatrol, and Net Nanny claim that their software can be customised to filter out objectionable material. The extent to which this is achieved is dependent on a number of factors including the techniques used to block or exclude material, how active users are in recommending unsavoury sites (most software producers have a reporting mechanism for this purpose), how up-to-date the list is of excluded sites, how compliant those who are expected to administer the use of such software are, and how clever the maintainers of blocked sites

are in getting around the software. Allison and Baxter (1995) consider this use of intelligent software to filter information a "technological fix" and question the feasibility of software filters in the absence of a broad-based system of Internet content classification.

> Reliable, intelligent software filters are technologically infeasible. Although one can envisage crude filters for text based on keywords, general filters for other digital materials are infeasible. For example, the required sophistication for image processing software to identify offensive digitised video images is not likely to be available in the foreseeable future. The same applies to audio. Intelligent software filters are at best a partial solution. The coming multimedia age will make them an increasingly less complete solution.

Commercial software producers have not been deterred, however, and the number of products on the market is on the increase. A compiled list of producers and their products can be found at http://www.pitsco.com/p/resframe.htm along with a variety of supporting resources about the efficacy of this kind of protection. For a more detailed discussion of the limitations of intelligent software filters in the school and home, consult McKenzie (1996). See also the work of Karen Schneider (1997), parts of which are available at the The Internet Filter Assessment Project (TIFAP) site at http://www.bluehighways.com/tifap/. For comparative reviews of Internet filters see the following:

C|NET's evaluations and *PC Magazine*'s comparisons at
http://www.cdnet.com/content/reviews/compare/safesurf/
Internet World's comparisons at
http://www.internetworld.com/print/monthly/1996/09/safe.html

Two excellent collections of links to articles and other information about filtering software in schools and libraries can be found at the Librarians Information Online Network (LION) at http://www.libertynet.org/~lion/filtering.html and at Jerry Kuntz's LibraryLand site http://www.rcls.org/libland/cen/cens.htm. Pro-Internet filtering in-

formation is located at the cleverly (deceptively?) titled Filtering Facts Home Page at http://www.filteringfacts.org/

Of special interest is the report *Faulty Filters: How Content Filters Block Access to Kid-Friendly Information on the Internet* by the Electronic Privacy Information Center located at http://www.epic.org/reports/filter-report.html. This report reveals some alarming results based on comparisons between 100 searches using Net Shepherd Family Search and the unfiltered Alta Vista search engine. The study concluded that, overall, Net Shepherd regularly blocked access to over 99 percent of documents from sites of potential interest to children, including such seemingly innocuous sites as schools, charitable and political organizations (e.g., American Red Cross, UNICEF), educational, artistic, and cultural institutions (e.g., Disneyland, San Diego Zoo), and "miscellaneous concepts or entities" (potential research topics) such as astronomy, eating disorders, and photosynthesis.

Some of the more popular products include the following:

CyberPatrol (The Learning Company)	http://www.cyberpatrol.com/
SurfWatch (Spyglass Inc.)	http://www.surfwatch.com/home/
Net Nanny (NetNanny Software Int. Inc.)	http://www.netnanny.com/
CensorNet (ATS International Pty. Ltd.)	http://www.ats.com.au/censornet.html
CYBERsitter (Solid Oak Software)	http://www.solidoak.com/
Bess, The Internet Retriever	http://www.bess.net/
Cyber Sentinel (Security Software Inc.)	http://www.securitysoft.com/
GuardiaNet (Landmark Community Interests)	http://www.safekid.com/home.htm
Cyber Snoop (Pearl Software)	http://www.pearlsw.com/csnoop/snoop.htm

X-Stop (LOG-ON Data Corp.)	http://www.xstop.com/
WizGuard (WizGuard Co.)	http://www.wizguard.com/

The titles chosen for these pieces of software conjure up protective images. This is not likely a coincidence. Terms like *nanny*, *sitter*, *shepherd*, and *patrol* suggest that guidance, advice, and even comfort may be forthcoming for the helpless child lost along some off-ramp of the electronic superhighway. This may be why these companies have had so much trouble trying to shake off accusations that their products actually constitute a form of online censorship. As Williams and Dillon (1993) point out, the idea of protection is one of the main, if not the main, motivation of would-be censors of school library materials in Australia.

Internet Service Providers (ISPs) can also limit access to selected sites on an ongoing basis. In Australia, schoolsNET (http://www.schnet.edu.au/), for example, uses software called CensorMan to block access to sites in the schools it services. Ingvarson (1995) points out that the decision to block one or more sites is a school decision and not a decision of the ISP. ISPs are merely providing a service to schools. Not only is it impossible for ISPs to guarantee blockage of potentially controversial sites for schools, due in part to the sheer number of new sites appearing every day, it is also difficult to predict the types of sites schools want blocked. For example, some seemingly innocuous sites such as the NBA Home Page and the home pages of television programs such as *The Simpsons* have been the subject of requests for blocking by schools because of their potential for wasting valuable student time online.

For readers who would like to know which sites have been blocked by their intelligent software filters (e.g., CyberPatrol, SurfWatch, CyberSitter, and NetNanny) see the Netly News Censorware Search Engine site at http://cgi.pathfinder.com/@@@XVtgcA4ghL2zWe/netly/spoofcentral/censored/index.html. A more recent development has been that of the Platform for Internet Content Selection (PICS) which has been designed to

> enable parents, teachers, or administrators to block access from their computers to certain Internet resources, without censoring what is distributed to other sites. It draws on two unique features of the Internet.
>
> First, publishing is instantaneous, world wide, and very inexpensive, so it is easy to publish rating and advisory labels. Labels and ratings already help consumers choose many products, from movies to cars to computers. Such labels are provided by the producers or by independent third parties, such as consumer magazines. Similarly, labels for Internet resources could help users to select interesting, high-quality materials and could help supervisors to block access to inappropriate ones.
>
> Second, access to Internet resources is mediated by computers that can process far more labels than any person could. Thus, parents, teachers, and other supervisors need only configure software to selectively block access to resources based on the rating labels; they need not personally read them.

CensorMan, for example, is PICS compliant. The PICS solution was reportedly received with some enthusiasm by the *Online Services Investigation* according to Walsh who concluded that "The key appeal of the PICS proposal is that it places the responsibility for limiting access to unsuitable material on the user." (1996, p. 8). The PICS Home Page is at http://www.w3.org/PICS/ and frequently asked questions (FAQ) about the PICS site is located at http://www.w3.org/PICS/PICS-FAQ-980126.html.

Acceptable Use Policies (AUPs)

In addition to the use of intelligent software filters, teacher-librarians and other staff have attempted, either voluntarily or by direction, various other means of monitoring student access. The most common of these methods is supervision of access. Clearly this is not a practical solution. In particular, the practice of requiring students to use lower baud rates on their modems in order to slow any downloads of graphic material appears to be misguided. Such monitoring places the teacher or teacher-librarian

firmly in the role of gatekeeper. Another idea is to establish a menu of servers from which students can select desired pathways. Specialist educational providers of access to the Internet may provide a list of bookmarks on the World Wide Web which they recommend as educationally useful. Another method is to download a selection of potentially useful sites using a software package like WebWhacker (http://www.bluesquirrel.com/whacker/) for a designated need. For example, assign a topic and have students conduct their searches of those sites. Of course, some of these measures are fanciful as students will quickly work out how to navigate their way to other parts of the Internet.

One of the most popular options for management of student access to the Internet is the adoption of an AUP. An AUP is a written agreement, signed by students, their parents, and teachers, outlining the terms and conditions of Internet use. Some AUPs are instituted by educational authorities or by individual schools and school boards. Heide and Stilborne (1996) contend that a thorough AUP contains the following elements:

- a description of what the Internet is,
- an explanation of how students will access the Internet at school,
- examples of how the Internet will be used to enhance student learning,
- a list of student responsibilities while online, which might address such issues as
  - privacy
  - morals and ethics
  - freedom of expression
  - legal constraints
  - safety
  - harassment
  - plagiarism
  - resource utilization
  - expected behaviors/etiquette
  - security issues.

- the consequences of violating the AUP, and
- a place for student, parent, and teacher signatures. (p. 67)

Heide and Stilborne (1996) stress that AUPs should not be imposed on users without consultation. They need to be introduced into school communities with a good deal of diplomacy and education, preferably in tandem with a "cyberspace evening," which would include demonstrations of what the Internet has to offer in terms of teaching and learning: "Stress that, with the privilege to use the Internet, students must accept the responsibility for acceptable use" (p. 67).

Spalding, Gilding, and Patrick (1996) report that many Australian schools are adopting the idea of AUPs or similar permissions. In the United States, the school legal counsel may be asked to scrutinise any AUP at the drafting stage. While such a suggestion reflects the litigious nature of U.S. society (school policies including selection and collection policies for school libraries are signed legal documents in many U.S. school districts), most existing Australian policies are less formal and are clearly designed to apportion responsibility for using the Internet in schools. Ultimately, the responsibility for allowing access should rest with students and their parents and not with an ISP, educational authority, school, or individual staff members. In fact, Spalding, Gilding, and Patrick (1996) warn that even systems based on parental permission are really short-term measures.

> The notion of parental permission, however, will become increasingly difficult as more students use the facility. The students who do not have parent's permission will become disadvantaged in terms of restricted access to a resource. Some schools believe this is an interim phase and, in due course, it will not be realistic to have a situation where some students, at the discretion of their parents, will be denied access. It will be more a question of parents understanding what is being offered, what particular controls that particular school has in place, and feeling reassured about the capacity of their child to handle the consequences of an inadvertent

> exposure to controversial material. The bottom line, as one school put it, is that parents may choose to send their children to another school. (p. 32)

The consensus of opinion among participants in the "Censorship and the Internet: Problems and Solutions" topic of the 1996 ITEC Virtual Conference (Hay & Henri, 1996) supported such a view: Responsibility for searching the Internet should lay with students and parents. An "information session" for parents about using the Internet as a research tool was a widely accepted strategy for alleviating actual or potential concerns of parents. Davison (1996) described an Internet access-management strategy for secondary schools where the onus of responsibility for sites visited lay with the individual student who is accountable for his or her actions. Similar to many other schools, there were penalties for infringers. This model, however, addresses one of the main criticisms of Internet access-management in many schools—lack of student involvement, for example, in the formulation of AUPs or in the determination of appropriate penalties for infringements.

Does an AUP differ from a School Policy for student access to the Internet? The following suggestions have been adapted from McKenzie (1995):

> In basic terms, AUPs help to define acceptable behaviors by student and staff users of information systems, while school policies take the matter much further.... [School] policies also describe acceptable student behaviors, echoing the content of AUPs, but they tie those standards to the [school's] policies on student rights and responsibilities, drawing connections, for example, with the school policy and procedures on locker searches and a student's rights to privacy and freedom to read. They tie consequences and procedures to those already in effect.
>
> In addition, a [sound] school policy takes a position on access to potentially controversial information and relates these new information sources to pre-existing policies on curriculum and the selection of curriculum materials, outlining clear expectations for staff supervising student use.

Finally, a comprehensive set of policies would also outline staff responsibilities and rights as employees using these utilities.

Hanson (1994) offers the following "Acceptable Use (Ethics) Agreements Checklist" as a guide for formulating policy at the school level:

- confirm student has read it and understands it
- may or may not include parent permission
- use of the Internet is a privilege, not a right
- respect for limited network resources
- proper account management (quotas)
- nothing is really private
- remain on distant systems only as long as you need to
- adhere to time restrictions of archive sites
- check for and adhere to copying and licensing agreements
- lurk on a listserver or newsgroup before posting
- insert your address at the bottom of messages
- be careful with sarcasm and humour
- learn the difference between a listserv's admin and discussion addresses
- rarely reply to the list, opt for replying to the poster
- never share your account with anyone
- use a cryptic password
- be alert for unsuccessful login attempts and last login flags.

What is yet to be determined, however, is how much legal bite AUPs and similar documents have. Are these agreements bona fide in the contractural sense, or do they merely provide educators with an illusory sense of having acted appropriately in loco parentis? The proof will be in the testing although from a legal perspective, Williams (1997) offers this opinion:

Central to the operation of acceptable use policies and contracts is their form. They are written documents, containing provisions as to use of the Internet and signatures supposedly indicating agreement with the provisions contained in the document. To a large extent, they seem to overlap in purpose and function, but an acceptable use policy generally requires the signature of both student and the student's parent or guardian, while a contract will generally only require the signature of the student. An acceptable use policy is usually designed as a precondition to access to the Internet, while the contract is presumably primarily intended to govern what happens once access to the Internet has occurred. However, the end point with both an acceptable use policy and a contract appears to be identical: the withdrawal of the privilege of using the Internet if the terms of either document are not adhered to by the student.

It is my humble view that the so-called contract is a "legal nonsense." The contract is not a contract in the legal sense and, therefore, should not be called a "contract." It is not a document imposing legal obligations on the student, breach of which entitles the teacher or the school to sue for compensation before a court. The acceptable use policy may not be a legal nonsense but it is, at the very least, a sheep in wolves' clothing! An acceptable use policy is nothing other than an attempt to more formally articulate expectations relating to student behaviour, expectations that can equally be articulated orally or by simply posting up a list of rules. The fact that parents may have signed the document doesn't, in my view, change the nature of the document.

A more serious concern, from my perspective, is the penalty for a student who fails to adhere to the provisions of the contract or of the acceptable use policy: a withdrawal of the privilege of accessing the Internet. Would the penalty be imposed when a teacher-librarian has "knowledge in fact" of breach of the rules about Internet use, or can it be imposed when the teacher-librarian merely has "reasonable grounds for believing" that the rules have been breached? How often will the penalty be imposed? And will imposition of the penalty mean that the student will not acquire skills and knowledge that will form the basis of his or her assessment in particular curriculum areas? The more closely Internet access and use is tied to the teaching and assessing of curriculum areas, the greater my concern about the penalty. The issue of legal liability for negligent teaching, such as the failure to teach the full curriculum, has already reached the courts in various countries, including Australia, and while we await a definitive answer on the mat-

ter, there are many who would argue that it is just around the corner. (pp. 11–12)

Sources of Policies

There are a number of collections of sample school policies for student access to the Internet and AUPs for schools and school libraries. Following are some of the most well known (in no particular order):

1. South Australia. Department for Education and Children's Services. Internet User Guidelines http://www.nexus.edu.au/Publicat/Other_Publications/AUP.html
2. Victoria. Ministry of Education. Using the Internet—Taking Care on the Internet http://www.sofweb.vic.edu.au/internet/takecare.htm
3. Pitsco's Launch to Acceptable Use Policies http://www.pitsco.com/p/resframe.htm

   One of the very best sources of information about AUPs in schools.
4. Acceptable Use Policies (Rice University, Houston, Texas, USA) http://www.rice.edu/armadillo/acceptable.html
   Includes a wide range of sample AUPs and discussions about Internet censorship.
5. Global SchoolNET tutorial on developing Acceptable Use Policies http://www.gsn.org/web/issues/index.htm#begin
6. Bellingham Public Schools http://www.bham.wednet.edu/policies.htm
   Look under Board Policies then under subdivision Internet.
7. The Internet Advocate http://www.monroe.lib.in.us/~lchampel/netadv.html
   Look under Introduction then under subdivision Develop an Acceptable Use Policy.
8. K–12 Acceptable Use Policies http://www.erehwon.com/k12aup/

Includes templates for developing AUPs.

9. Texas Education Network (TENET) http://www.tenet.edu/tenet-info/accept.html
   Contains TENET Acceptable Use Policy plus a selection of school policies.
10. Avoiding Ethical Potholes: Acceptable Use Policies http://www.acs.ucalgary.ca/~mueller/aup.html
    Includes a range of sample AUPs, links to other collections of AUPs, and related sites.

Of course, URLs can and do change, so it is wise to recheck your bookmarks from time to time. The preceding URLs were accurate as of November 26, 1998.

Conclusion

The whole question of student access to the Internet is a perplexing one. Media hype has certainly fuelled the debate over access to the Internet for school-age children and sown the seeds of doubt in the minds of some members of school communities about making access to the Internet a reality and a priority. For teachers and teacher-librarians, there are a range of crucial issues to consider that have to do with equity of access and effective harnessing of the Internet for teaching and learning. As part of the school's information technology team, the teacher-librarian or information specialist has a pivotal role to play in facilitating access to, and effective use of, this valuable resource for all members of the information-literate school community.

References

Allison, L., & Baxter, R. (1995). *Protecting our innocents* (Technical Report 95/224) [online]. Melbourne, Victoria: Department of Computer Science, Monash University. Available: http://www.cs.monash.edu.au/publications/se/del/1995/tr-cs95-224/1995.224.html [June 2, 1995].

Barron, D.D. (1995). Information services facilitators to replace school library media specialists. *School Library Media Activities Monthly, 11*(8), 48–50.

Collins, S.E. (1996). *A fear of rare and mysterious dangers*. Available: http://web66.coled.umn.edu/Ramble/ChildSafety.html

Davison, P. (1996). Censorship and the need to develop policy. In L. Hay & J. Henri (Eds.), *A meeting of the minds: ITEC Virtual Conference '96: Proceedings*. Belconnen, ACT: Australian School Library Association.

Hanson, W. (1994, November 15). RE: Student access to the Internet. *School Library Media & Network Communications* [online]. Available e-mail: listserv@listserv.syr.edu

Hay, L., & Henri, J. (Eds.). (1996). *A meeting of the minds: ITEC Virtual Conference '96 Proceedings*. Belconnen, ACT: Australian School Library Association.

Hay, L., & Kallenberger, N. (1996, April). *The future role of the school information services unit in the teaching/learning process*. Paper presented at Electronic Networking and Australasia's Schools, Sydney, NSW.

Heide, A., & Stilborne, L. (1996) *The teacher's complete & easy guide to the Internet*. Toronto, ON: Trifolium.

Ingvarson, D. (1995, June) *Censoring the Internet: The practicalities*. Paper presented at The Information Highway and the Nation's Schools Conference, Sydney, NSW.

Ingvarson, D. (1996) Censorship: Planning a safe ride on the superhighway. In L. Hay & J. Henri (Eds.), *A meeting of the minds: ITEC Virtual Conference '96: Proceedings* (pp. 1–8). Belconnen, ACT: Australian School Library Association.

McKenzie, J. (1995, May). Creating board policies for student use of the Internet. *From Now On: A Monthly Electronic Commentary on Educational Technology Issues* [online], 5(7). Available: http://www.fromnowon.org/fnomay95.html [May, 1995].

McKenzie, J. (1996, March–April). Filtering the Web: A tale of fishnet stockings and Swiss cheese—A dozen reasons why schools should avoid filtering. *From Now On: A Monthly Electronic Commentary on Educational Technology Issues* [online]. Available: http://www.fromnowon.org/fnomar96.html

Ohlrich, K.B. (1996). What are we?: Library media information specialists, computer technology coordinators, teacher instructional consultants, school-based team management members, or what? *School Library Media Activities Monthly, 12*(9), 26–28, 32.

Schneider, K.G. (1997). *A practical guide to Internet filters*. New York: Neal-Schuman.

Spalding, B., Gilding, J., & Patrick, K. (1996). *Management of student access to controversial material on the Internet*. Canberra, ACT: Australian Government Publishing Service.

Walsh, V. (1996). Regulation and the Internet. *Incite, 17*(8), 8.

Williams, C.L., & Dillon, K. (1993). *Brought to book: Censorship and school libraries in Australia*. Port Melbourne, Victoria: ALIA Press/DW Thorpe.

Williams, P. (1997). *Censuring the censor—Does the law help or hinder? Drawing lines in the sand*. Paper presented at Tasmanian Secondary College Teacher Librarians Conference, Newstead College, Launceston, Tasmania.

One Small Step . . .

Vivienne Hand

That was how I described the school decision in 1994 to purchase a computer with CD-ROM drive. At that time each classroom had a basic PC and a range of age-suitable software, but no CD-ROM drives. With a ratio of one CD-ROM to approximately 200 students, how could this be anything more than a small step and, more importantly, how could it be used effectively? When and how would that small step become a giant leap?

The First Step

The purchase of a new computer had been made possible through a donation of money to the school, and I was asked by the principal to recommend a suitable focus for its expenditure. A computer with CD-ROM drive was already on my plan for the library, and my recommendation was happily accepted. We placed the computer in the school library and chose to regard it primarily as an extension to our reference collection—after all, one computer was not going to replace thousands of books. As such, the emphasis was to be on its place within our information literacy programs.

The use of information technology (IT) was and is just one contributor to the information process that students must master in order to become information literate. The terminology may differ from place to place but, essentially, the information process

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is a nonlinear progression involving the definition of an information task; the location of relevant information; the selection, organisation, and presentation of that information; and the evaluation of the task. Thus, the type of software originally purchased included information-rich titles such as Microsoft *Encarta*, Microsoft *Dangerous Creatures*, Dorling Kindersley *The Way Things Work*, and *World Book Multimedia Encyclopedia*.

The availability of suitable curriculum-related and general reference titles soon expanded, and we gradually added to our collection. The restricted access for students became increasingly frustrating, as they very soon realised how much more fun it was to use the computer. It was not until 1996, however, that we were able to acquire a second computer, again located in the library, so that all students in the school could have access. This second purchase coincided with the decision to begin to build up a range of software titles more appropriate for the junior primary students, our initial emphasis having been on material suitable for Years 3 to 7. This task is easier now with the wider range of good, information-rich programs for younger children.

Some titles that I found useful, however, were Dorling Kindersley *My First Amazing World Explorer*, Commonwealth Scientific and Industrial Research Organization (CSIRO) *The Dynamic Rainforest*, Knowledge Adventure *Bug Adventure*, and Microsoft/Scholastic *Magic School Bus Explores the Human Body* and *Magic School Bus Explores the Solar System*. Other titles, which had been purchased to support the older students' needs, were also found to be useful when used in a very guided and focussed way: Microsoft *Dangerous Creatures* and *Musical Instruments*.

So, having acquired hardware and software, what were we trying to do, and has it proven effective? For research tasks, the students were and still are encouraged to use a range of resources: print, nonprint, electronic, and human. The CD-ROMs were just one of many types. Working in collaboration with classroom teachers to plan and teach units of study enabled me to work

with small groups of students at a time, guiding them in their use of the CD-ROM collection to locate, select, and use information appropriate to their current needs.

Students find computers motivational. They quite simply have fun whilst they are learning. However, although they are certainly able to locate information more quickly and more easily than with conventional book resources, as with books, the difficulties arise when they need to select and organise what is relevant to the task. The links from one screen to another are often fascinating and highly informative, but tend to take the user off task. At times this may be perfectly in order, but young children generally need little to divert them from a task, and I have found that focus questions are even more important in the use of this type of resource than with books. Definition of the task is therefore absolutely vital. Without some focus to their search, students' viewing can be quite superficial. They are likely to flit from one video, picture, or animation to the next without really taking in much detail. Many CD-ROM programs also have games embedded in them, which the children will always seek out in preference to other parts of the programs. However, it is just this variety of presentation, graphic, verbal, animated, and aural, which caters so well to differences in learning styles. Poor readers, too, can have success because of the quantity of information presented visually.

So, how do you move students beyond the razzmatazz to the information? To begin, allow them time to play, explore the program, and become familiar with both content and structure. Once interest has been captured, it can be channelled effectively into a more focussed task. The teacher has a very important role in helping the student to target the relevant information. Computers certainly do not lessen that role; rather they make it more important.

Whether students have frequent or infrequent access to information on CD-ROM, there are a number of constants that teachers should consider:

- Teachers should be familiar with the content and the structure and the consequent suitability of the program for the group of students for whom it is intended.
- Teachers should capitalise on the fun aspect of programs as an important motivational tool, but move students on to the information with pertinent focus questions and tasks.
- Teachers should review and evaluate CD-ROM programs carefully before purchase and use them as one would a book.
- Teachers should check into books or other sources of information, which may do the job better.

Between 1994 and 1997, I continued to work with small groups of students on structured research tasks. These tasks were planned mostly in collaboration with the classroom teachers, and I was able to observe the students using the variety of software titles available for individual research needs or during play and lunch periods. Our beginnings were somewhat restricted and tentative but, I am sure, positive. The frequent opportunities I had to closely observe the students' interaction with the programs and with each other, and the chance to become familiar with both the content and the structure of the programs, were invaluable in suggesting future directions.

In 1994 few of our students had their own CD-ROMs, but by late 1996 most of them had home access. In 1994 the school had led the way; in 1996 we were being overtaken. Much has been written of the potential for information technology to enhance learning, and I had seen positive signs of this in my observations of students during the last 3 years. But, disturbingly, as home ownership of computers grew, so did some of the negative aspects. Cutting and pasting of information had become alarmingly simple for students. The age-old habit of copying chunks of text from book to research assignment had merely been adapted to the new technology. Certainly technical skills were learned quickly and work could be presented beautifully, but was learning being en-

hanced? In many cases, unfortunately, it was not. During 1996, I became more concerned about these issues. On the one hand, I only had to observe students working with computers to see how motivated they were and how, given the right guidance, they could improve their information skills through this medium. On the other hand, I had a sense of helplessness, of losing control, simply because each individual student had so little time at the computer during school hours.

The Next Step in Exploring Our Options

Technology is a major part of our everyday lives, and it cannot be ignored. Although increasing numbers of our students had home access to computers, we were unable to teach them how to use the vast wealth of information available to them electronically without the appropriate infrastructure. Information in itself is not knowledge; it is the selection, evaluation, and synthesising of the information that is important, and this must be taught in a systematic manner along with the technical skills of using various computer applications. We are in an information age, and our students need an education suited to that context. It is a major challenge to us to provide teaching and learning programs that will help our students to acquire an appropriate set of skills.

It means developing high-level information literacy and networking skills in students, while continuing to enhance certain of the time-honoured attributes. It requires schools to identify the major attributes they want to develop in students and to focus upon them. The challenge is immense (Lee, 1996).

It was time for some serious planning. I wanted the school to expand its information technology capabilities but wanted to avoid potential problems. The school would need to thoroughly research the options and make sound and considered decisions based on the needs of our school and our students rather than to allow outside forces, such as models for IT adopted by other

schools or the software and hardware manufacturers, to dictate those decisions for us.

At the end of 1996, the school council convened a small committee of two parents, who were selected from declared expressions of interest for their expertise in computing and management, and three teachers. Our role was to investigate the present and future needs of our teachers and students in relation to information technology and its role in the school's learning environment and to make recommendations.

Our investigations included the following:

- a survey of the requirements and expectations of the parents and the teachers,
- research into current literature in the field,
- a review of practices in other schools through visits and discussion with appropriate staff,
- advice from suppliers of computers to schools, and
- a review of curriculum requirements.

We considered many issues including curricula and pedagogical implications, teacher professional development, hardware and software and its physical organisation, equity of access, parental expectations, and finance.

The parent survey showed the following:

- a very high ownership of home computers within our school community (at over 80%, this is higher than the community norm),
- the belief by a significant number of parents that the level of IT use in the school was less than adequate,
- strong parental support for increased use of IT in the school teaching and learning programs, and
- a strong desire among parents for their children to have a wide range of IT experiences.

The teacher questionnaire indicated the following:

- the belief among teachers that it was important to increase the level of availability and use of computers in their teaching and learning programs, and
- recognition that they did not currently have the necessary skills to integrate IT effectively into their teaching and learning programs. All were keen to develop those skills given suitable resources.

Research of the literature and discussions with other schools revealed some important issues. Because it is a new and developing field, there are no universally established procedures and protocols for the integration of information technology. Many different models and approaches have been adopted by schools. There are perhaps almost as many models as there are schools. Each school needs to find its own solutions appropriate to its financial and physical situation.

We were encouraged to find support for the theory that the integration of information technology does have the potential to enhance student learning given adequate access to computers, appropriate teaching and learning programs, and ongoing, adequate, and appropriate professional development for teachers (Gateways: Information Technology and the Learning Process, 1996; Learning Technologies Planning Guide for Schools, 1997; Shears, 1995).

Amongst the evidence that the integration of learning technologies enhances learning is that of the Apple Classroom of Tomorrow (ACOT) research project, which began in 1985, and which studies the impact of technology in the classroom. Originally based only in the United States, there is now an ACOT school in Melbourne and another planned for Queensland.

Contrary to early belief that computers would create isolated children who are unable to communicate with each other, children with no social skills nor the ability to write, the findings of the ACOT project include the following:

- Computers actively encourage children to work together and work harder. In fact, one consistent finding of research, both in Australia and the United States, is that using the ACOT model, students are often so enthused, they spontaneously complete work during lunch times and after school.
- Student behaviour changes for the better when they are immersed in a constructivist and collaborative learning environment where technology is freely available.
- Students take responsibility for their own learning, becoming more resourceful and gaining respect for their learning and other students.
- Academic results improve.
- Students write more effectively and finish whole units of study far more quickly. (*Apple Education News*, 1997)

We concluded that appropriate teaching and learning programs, adequate access to appropriate technologies, and support for teachers in terms of ongoing professional development are crucial to success. The most effective context for professional development, which will result in significant change, is that which occurs in a learning organisation as opposed to an organisation for learning. For an organisation to become a learning organisation, all need to become learners together: the principal, the teachers, the students, the ancillary staff, and the parents.

Fleming (1996), reflecting on the experience of her own school, believes that being a learner requires training, ongoing support, and answers to questions when they arise. Professional development for learners who are also teachers is imperative. Without it, the initial fear of the technology will become widespread, the organisational climate will spoil, and the credibility of the leadership will wither. Professional development practices require a consistent, regular approach built on camaraderie, hot-

lines, mentor schemes, open access, and immediate feedback. Training should build self-esteem. Most people enjoy teaching what they have learnt properly; this should become a principle for organisational practice (Fleming, 1996).

Appropriate teaching and learning techniques require teachers to recognise the potential of learning technologies and, in many cases, thereby make major changes to their theories of learning. There will be a move from teacher-centred instruction to learner-centred learning. Constructivist learning is well supported by learning technologies. It does not mean a breakdown of order, but a recognition that students will learn better in situations in which they are required to become responsible for their own learning. This also will mean fostering a collaborative learning environment. This will not happen overnight. Teachers will need to become risk takers: some will find the process easier than others, and some will resist. All teachers will need support.

The Giant Leap

Our first and perhaps most important recommendation to the school council was that the school adopt an information technology policy that places emphasis on the integration of information technology into all key areas of learning; supports the notion that for this to succeed teachers must be supported by adequate, appropriate, and ongoing professional development; and provides appropriate resources, infrastructure, and adequate funding. Everything flows from the acceptance of this policy.

Early 1998 saw our giant leap forward. The first stage of our 3-year implementation plan is now in place. A part-time information technology teacher was appointed to work with teachers and students to support the teaching and learning program and to provide some of the teachers' professional development. Teacher professional development is ongoing and may be planned or incidental, individual, group, or whole staff. Whole-staff workshops

have been an important feature of the early weeks as we strive to acquire competence with the hardware and software. Also, as skills are taught to the students, we are learning in tandem with them. But we are all individuals with individual needs. As our skills develop so does our knowledge of the possibilities for our own areas of work, and we are encouraged and supported with time and funding to attend courses and conferences appropriate to our needs. It must be recognised, however, that there is no easy way to proficiency. It is already clear to us that unless teachers have ready access to computers at all times—and this means owning their own computers—this will be a long and frustrating path. We are exploring ways in which teachers can be helped to do this.

We are not trying to teach computing. There are no extra subjects in the curriculum. In whatever way we use learning technologies, our aim is to enhance learning by integrating information technology into all areas of the curriculum. Our students undoubtedly will learn computing skills, which we want, but not in isolation.

Hardware has been leased, and networking infrastructure and software have been funded through the school's recurring budgets. We now have 29 PCs with CD-ROM drives available for student use. This represents considerable expansion in hardware and much greater student access. The more I reflect, the more I value those humble first steps along the information technology highway. We were able to explore possibilities without pressure, to gain personal skills, to observe students' behaviours and interactions, to contemplate possibilities, and to reflect on what worked and what didn't before any decisions were taken regarding major financial outlays.

The Present

Our teaching and learning programs involving information technology are now, of course, much broader, with the focus on integrating the technology into all key areas of learning. We no longer need to restrict ourselves to using CD-ROMs for research purpos-

es alone. However, the giant leap forward has not been just in terms of hardware and software, but in the degree to which students are beginning to successfully use them to enhance their learning.

As I write this, it has been just one short term since the start of the school year, and I find it hard to believe how rapidly we, and our students, are successfully enhancing our learning. The older students (Years 6 and 7), for example, are capably multitasking. For example, they locate and select relevant information within a CD-ROM and then switch applications to place this information in a graphic organiser, such as a concept web or diagram. This is created in a drawing program into which they can insert both text and graphics. These skills in notetaking and creating graphic organisers can now be transferred to other tasks and further developed.

One group of students has created board games, which are designed to incorporate elements of plot and characterisation in stories they have read. A similar task was carried out by the group the previous year without the help of computers and proved to be far less successful. On that occasion, most of the students' time was taken up in drawing up the board by hand rather than concentrating on the story elements, the latter being, however, the intended outcome. This time the computer has proven to be liberating and supportive of creativity and learning.

Another group has used the same set of skills to learn about food webs as part of their environmental studies. A Year 3 class has created a set of overhead transparencies to support their presentation of the weekly church service. Some students have explored nets of geometric shapes and then used the skills to design chocolate boxes. The list could go on. Many of the tasks attempted in these early days have been planned necessarily with much greater emphasis on some of the basic skills, which the students and teachers need rather than on the purpose for which they are being used. They have not, however, been taught in isolation but as a natural part of the existing curriculum providing an alternative

way of teaching and learning where it is considered relevant and beneficial. We know we have not yet gotten the balance quite right. There is, undoubtedly, at this stage some artificiality about the use of the computers for certain activities as we strive to learn their potential in the learning process. There is much to be achieved before it becomes natural to us to view computers as just one of many options to be considered to help us to achieve our goals.

However, we do know that computers are powerful multipurpose teaching and learning tools at our disposal. Already our hopes are beginning to be realised as we reflect upon these early developments. We know that some students, who often were regarded as reluctant learners, are becoming much more task oriented and excited about their learning when working with the computers. We see how students can be amazingly inventive and creative in their use of computer applications. Computers do seem to encourage both independent and collaborative learning, as well as problem-solving behaviours. They undoubtedly offer an intellectual challenge, which the students are keen to meet.

The Future

We will, of course, need to continually monitor our programs and keep abreast of technological advances. Not everything is perfect. Some practical management issues need to be addressed. Indeed, today's plans may need to be changed tomorrow. However, as long as the contribution to learning continues to grow, the prospects are exciting. We don't have all the answers, but we are hopeful about the possibilities, and those possibilities are all the stronger because of the strong foundations upon which they rest.

References

ACOT. What it is. (1997). *Apple Education News, 14*(2).

Fleming, D. (1996). Of principals and computers. *EQ Australia*, 1.

Gateways: Information technology and the learning process: A collection of teacher practice from Australian schools. (1996). Canberra, ACT: Author.

Learning technologies planning guide for schools: Using IT to improve teaching and learning. (1997). Melbourne, VIC: Education Victoria: Author.

Lee, M. (1996). Into the information age. *The Practising Administrator*, 4.

Shears, L. (Ed.). (1995). *Computers and schools*. Melbourne, Victoria: Australian Council of Education Research.

CD-ROM

Ancient lands. (1994). Microsoft

Australian mammals. (1996). Webster.

Bug adventure. (1994). Knowledge Adventure.

Dangerous creatures. (1994). Microsoft.

The dynamic rainforest. (1996). Commonwealth Scientific and Industrial Research Organization.

**Encarta multimedia encyclopedia*. (1994). Microsoft.

Magic school bus explores the human body. (1994). Microsoft/Scholastic.

Magic school bus explores the solar system. (1994). Microsoft/Scholastic.

Musical instruments. (1992). Microsoft.

My first amazing world explorer. (1996). London and New York: Dorling Kindersley.

**The way things work*. (1996). London and New York: Dorling Kindersley.

**World Book multimedia encyclopedia*. (1995). Chicago, IL, and St. Leonards, NSW: World Book.

* Revised and updated editions of these programs are now available.

CD-ROMs as an Information Source

Lesley Russell

In the Junior School (to Year 6) at Scotch College in Adelaide, South Australia, where I am the Information Techology Coordinator, we have about 25 different titles on CD-ROM. These are primarily reference materials such as encyclopedias or titles that are specifically related to themes in the curriculum. Other CD-ROMs for different purposes are simulations and problem-solving games; multimedia clips (pictures, sound, and video for inclusion in other applications the students might be using); and Languages Other Than English, early childhood and special needs programs, where interacting with pictures, movies, and sound can be very motivating. The CD-ROMs are kept in the resource centre, and students borrow them for use on the 2 multimedia computers in the resource centre, the 16 in the computing room, or on their classroom computer.

The CD-ROMs are only one way to access digital information; however, at our school, information sources such as the Internet and intranet are more widely used, particularly by the older students.

The school's network and the school's intranet, on which teachers store information in Web-page format directly relating to curriculum topics, were set up to meet the needs of the expanding number of laptop-using students. Every Year 7 student

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at the school purchases a laptop computer for use at school. This program has been in place for 5 years, so that in 1998 all students from Year 7 to Year 11 use laptops in class and for homework. Because textbooks have been largely replaced by digital units of work that the students access or download to their laptops via the network, the school's intranet, known as the Scotch Web, has been developed into a comprehensive and ever-growing resource with live links to the Internet. (The Scotch Web is available to other interested schools on CD-ROM.) While not part of the laptop program, the Junior School has access to the intranet via the network that extends to the Junior School. Increasingly, material relevant to our curriculum is being added to the intranet.

Advantages of Digital Information

The teacher and the students are finding that digital information has many advantages over books and journals. The information is likely to be more current than that in reference books; it can be available to many users over a network at a given time; it can be accessed from various points throughout the school; key words can be located quickly; and information can be easily manipulated (copied and pasted into other documents). In addition students can read the text or view pictures in any order they choose, using links or buttons on the screen. Generally, they move through information in a random rather than the linear fashion that they are used to with a book. Another advantage is that digital sources include multimedia. In a world where information is largely delivered via television, students expect the same sort of liveliness and accessibility. Movies and sound bring information to life. For example, a movie of a lion stalking its prey or a sound of it roaring provide a much quicker and clearer idea of the animal's movement and call than reading a page of words about it.

When accessing digital information, an intranet has several advantages over CD-ROMs. First, at Scotch not every machine has

a CD-ROM drive (particularly the laptops), so CD use is generally confined to desktop machines in the resource centre and computing rooms. The intranet is available to every machine in the school that can connect to the network, whether desktop or laptop.

Second, CD-ROMs are relatively expensive and generally only one or two copies of a particular title are purchased. Lending them out to students has problems, such as the potential for damage or loss. The intranet resources on the network can be accessed by a whole class at the same time, are widely available, and not subject to damage. In the future when the school's network has the storage capacity and speed to run CD-ROMs, the disks will not be so susceptible to these problems. Another problem is finding CD-ROMs that will serve our purposes. Many do not meet the needs of Australian students who might be researching the local area, wildlife, history, or famous people.

Using an intranet, teachers can be sure that relevant information is available for students, who may more readily pursue a line of enquiry if the information has already been preselected for them and based on anticipated questions. Intranet materials can be readily updated by teachers and tailored to specific curriculum needs and reading abilities. By transferring information from the Internet to an intranet, the costs of individual students being on line is reduced, including the time spent finding information that is both appropriate and readable for students. However, CD-ROMs do have the advantage of delivering pictures, movies, and sounds more efficiently; and although our school's present network is not fast enough for multimedia, it is adequate for the text and picture-based intranet.

Concerns

While there are many advantages in using digital sources, they have highlighted a number of concerns that we have to deal with. These concerns are not restricted to digital sources, but

these new sources have brought new possibilities and sometimes new solutions.

When students find information they are looking for on CD-ROM, the Internet, or intranet, they immediately want to print it out. We teach them alternative strategies, such as typing keywords as dot points into the computer's notepad, copying phrases or a piece of text and pasting into a word processor, and then working on what they have noted or copied. Printing out, however, is an option that is too easy. We also explain from the early grades problems of copyright, plagiarism, the need to seek permission, and how to acknowledge sources, and we teach children strategies to deal with these.

Choosing good CD-ROMs is more time consuming than choosing new books because they are not so readily available for previewing, and we are not as proficient at sampling the contents. To warrant purchase costs, each must be checked out thoroughly to make sure it meets our needs. Many CDs offer little more than a book does, as they simply reproduce text and pictures on screen rather than making good use of multimedia. Because of their cost, CD-ROMs need to have a broad application rather than one-time use.

Another concern is finding relevant and readable text. Few CD-ROMs and Web sites are written specifically for child readers. At Scotch we are finding a solution to this. With an intranet, teachers and older students who are learning Web publishing can prepare material for younger students, with larger fonts, colour, headings, short paragraphs, scanned pictures, and simple language. Last year, for instance, Year 6 students prepared Web pages for the Year 3s about Asia, which the students at that level were going to study. The pages then became a resource on the intranet. Not only does this provide inexpensive relevant material but gives the older students an audience and purpose for their publishing.

Learning to search a vast pool of digital information on the Internet or on CD-ROMs is important but not our chief focus in

the Junior School at Scotch. We are attempting to use our intranet to provide students with easy-to-find, relevant, and readable information to answer their research questions. Our main concern at this stage is with how students construct their own meaning from this information.

Conversations With Teachers: Talking With Lorraine Hook

Lorraine Hook is a teacher-librarian at Mitcham Primary School, South Australia, a school with a strong emphasis on information technology. She has recently been appointed Coordinator in Information Technology. Lorraine is also Coordinator of the ALEA Technology in Literacy Special Interest Group.

How do you use CD-ROMs (CDs) in your role as teacher-librarian in an R–7 school?

I mainly use CDs as sources of information to give a different dimension to information from what you would normally get in a book. In a book you mainly work from the printed text, although I know books do include diagrams, charts, and pictures. In a CD the visuals are much more powerful. Students can click on aspects, make selections, and be more interactive. As well, students have the added dimension of sound and animation. For example, a science book might have a printed diagram of a lever, but the CD is likely to have a diagram and an animated working image along with sound.

Another category we use is that which emphasises entertainment and game playing, although there must be educational value as well. Perhaps one of the best known of these is *Where in the World Is Carmen Sandiego?* Another is *Planetary Taxi*, where students explore the solar system and are given tasks to do at differ-

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ent levels of difficulty. If a class were doing a unit on space, I would use this as a motivational tool and as a way of students applying their knowledge of the topic. Because it presents the students with problems to solve, it helps them think about issues such as how it would be to live on other planets, the feeling of weightlessness, or concepts of time.

What are some of the most useful CD-ROMs?

The most useful would have to be the three encyclopedias: *Encarta*, *Grolier*, and *World Book*. This is because they have excellent features for students to navigate their way around, and they have cross-referencing. Their one disadvantage is that they have restricted Australian content. I know there are Australian encyclopedias on the market in Windows format, but because we use only Macintosh computers we cannot access them yet.

As more CDs become available, I am becoming more aware of their quality and power, and the importance of students being able to easily access the information. The CDs need to be menu driven, and they need to have some form of indexing. In the same way that a nonfiction book without an index has limited use, a CD without an effective index or word search is of limited use. Word search is the most important aspect, because students usually are looking for specific information. The main reason for using a CD in a school is not to give an overview, but to give an in-depth search.

How do the print encyclopedias compare with the CD-ROM versions?

The students will always go to the CD before they will go to the print. One of the reasons may be that students can print or copy their information and have that information on paper or on disc. Having to sit down and take notes with the print encyclopedia may be a bit offputting! Also, with a CD, students can jump immediately to the type of information they want. If there is a word they do not understand, they often can click on it and get

the meaning instantly. They can also use related articles much more easily. With the print versions students have to go to other volumes or use the index.

Using CD-ROMs doesn't negate any of the information skills students use when working with books. They still need the skills of scanning, selecting, interpreting, note taking, comparing more than one source of information, and collating. Add to that the computing skills of navigating their way around the information, cutting, pasting or copying, printing, and manipulating the data once they have copied it.

CD-ROMs only provide information to a point. The topic-specific CD-ROMs, such as the Dorling Kindersley *Eyewitness Series*, usually contain less information than the encyclopedias and, if you are looking for in-depth information, you will still have to go to a book.

I do foresee, however, that the World Wide Web will soon replace both CD-ROMs and many books as the first port-of-call for information.

How do teachers use them in your school?

Most teachers do not have a great deal of opportunity to use CD-ROMs outside the library, because they do not have the appropriate computers in the classroom. However, in the upper primary unit where they have a pod of computers, the teachers have set specific tasks for the students to increase their skills in using all aspects of the program. One example was when students had to listen to a sound clip and play the video to answer some questions.

What are some of the advantages of using CD-ROMs in teaching?

They have huge advantages for children who find going to a big thick volume of printed text really off-putting. The amount of information on screen at any time is in more manageable amounts. Students can focus on and look at specific amounts of informa-

tion, and they can often make the text larger. It has an advantage for students with learning difficulties or students who are sight impaired, because they can enlarge the text and learn through the sound. The interactivity of a CD-ROM gives children the feeling of having control over the source of information. Students can work at their own pace and learn by viewing, listening, or reading. With the virtual reality aspect, students can pretend or imagine that they are there and experience things that they could not otherwise.

What are some of the problems you have faced?

It is hard to measure whether they are a more effective tool for learning than using the written text. It is possible for students to sit in front of the screen and click, but it does not mean they are absorbing what they are seeing.

Another problem is the limited access. For example, we have only two computers with CD-ROM capability in the resource centre. Their use requires individuals or small groups if they all want to know the same information at the same time. When doing research with a class, it is still much more effective to use books.

CD-ROM

Encarta. (1997 Win, 1995 for Mac). Microsoft.

Eyewitness Series (science, nature, history, space) [CD-ROM]. (1995–1997). London and New York: Dorling Kindersley.

Grolier Encyclopedia '96. Win. 1996. Danbury, CT: Grolier.

Nile passage to Egypt. (1993). Danbury, CT: Grolier, Discovery Communications.

Planetary taxi. (1994). Mac/Win Voyager. Microsoft.

Where in the world is Carmen Sandiego? 3.0. (1996). Broderbund.

Conversations With Teachers: Talking With Judy Simms

Judy Simms is a Years 1 and 2 teacher who is very keen to explore the many different ways information technology can enhance her students' learning. She has used a computer in her classroom for students' writing and for creating pictures for many years, and recently for creating comic strips. Her school has had a CD-ROM for only a few months, but already she has begun to teach with it.

How do you use CD-ROMs in your teaching?

As our CD-ROM player is in the resource centre, our use of it is very limited. However, my students are using it in developing their research skills. I have a range of abilities in my class so what I want my students to achieve when they use the CD-ROM varies. The outcomes I am aiming for are as follows:

- to develop confidence in using CD-ROMs,
- to develop skills in finding information on a CD-ROM,
- to practice research skills such as using key words to search for information,
- to select what to note and to note it in their own words, and
- to consolidate the learning of structures and features of information texts.

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How do you manage with only one CD-ROM player and having it in the resource centre?

In one of two ways. Either by preplanning with the teacher-librarian the area of research or the questions the students have identified, or by taking the whole class over to the resource centre on 3 days of the week the librarian is not at school.

In the first instance, two or three students go to the library at a prearranged time and work with the librarian for approximately 30 to 40 minutes. Although this method is very valuable, it takes a number of weeks for all the students to have a turn.

The second alternative is for me to take the whole class to the library and to work with them myself. I often do this to introduce a new CD-ROM or new skills. Then small groups take a turn on the computer while the others use print text to research their topics.

Which CD-ROMs are you finding most useful?

Right now I am using whatever the school has, which at present is very limited. The school has a CD-ROM *World Book Encyclopedia*, which has broad application to an endless range of topics, so it has been useful for students to learn how to find information, select key words, and begin note-taking skills. Unfortunately, the language used in this CD-ROM is difficult for less able readers.

I have been using reference books in the classroom to introduce the structures and features of information texts and the skills for using those texts. Some favourite Big Books for this teaching have been *Underground* and *Amazing Journeys*, which the students have found fascinating, even though they are intended for older children. Having been introduced to the terminology and skills using the books, the students apply this knowledge to their use of the CD-ROM.

Some programs that I have reviewed and that I really want to use with my children are *The Oxford Children's Encyclopedia*, the

Dorling Kindersley Children's Dictionary, and Dorling Kindersley *The Way Things Work* and *My First Amazing World Explorer*. I would also like to use *The Amazing Writing Machine* for children to publish their work, as it is a program that offers lots of support in writing a range of text types.

What are the advantages of using CD-ROMs?

I see four major advantages:

1. They are multilevelled, and some have endless possibilities for beginners as well as the more sophisticated users.

2. They are interactive. Many of the latest CD-ROMs allow students to choose to follow their own interests, and write, read, and listen to their own input, as well as accessing photographs, graphics, animations, and video clips.

3. They are flexible and fast in moving from one section to another at the press of a key or the click of a mouse.

4. They open up enormous possibilities for students to follow their own topics.

Already students in my class who have CD-ROMs at home are finding their own information and bringing print-outs of their discoveries to share at school.

What should teachers watch out for in using CD-ROMs?

While there are some wonderful programs available, there is a lot of garbage out there as well. CD-ROMs are still comparatively expensive and need to be chosen carefully. Books have been dumped to a CD-ROM without taking advantage of its interactive possibilities. This is a waste of a scarce resource. To be worthwhile, CD-ROMs need to be easy and logical to navigate, to use animation, photographs, and videos sensitively and accurately, and to be carefully targeted to their intended audience. Information texts on CD-ROM can be a trap with little substance

once the whiz-bang introductions and initial screens have been explored.

Teachers need to try the CD-ROMs themselves before leaving students to work with them. In that way, the value of the program, the information, and its potential for enhancing student learning can be assessed. My advice is to find a retailer who will let you try programs before you buy. It is also useful to know which commercial magazines carry valuable reviews of education CD-ROMs.

References

Bacon, R. (1991). *Amazing journeys*. Auckland, NZ: Rigby Literacy Links, Shortland Publications.

McKinnon, J. (1991). *Under the ground*. Auckland, NZ: Rigby Literacy Links, Shortland Publications.

CD-ROM

The amazing writing machine. (1996). London and New York: Dorling Kindersley Multimedia.

The Dorling Kindersley children's dictionary. (1996). London and New York: Dorling Kindersley Multimedia.

My first amazing world explorer. (1996). London and New York: Dorling Kindersley Multimedia.

The Oxford children's encyclopedia on CD-ROM. (1996). London and New York: Oxford University Press.

The way things work, 2.0. (1996). London and New York: Dorling Kindersley Multimedia.

World Book multimedia encyclopedia. (1996). Chicago, IL, and St. Leonards, NSW: World Book.

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Rapid changes and advancements in technology seem to occur daily, raising questions for teachers, librarians, and administrators about how to integrate these changes into the curriculum and the classroom. *Teaching Literacy Using Information Technology* attempts to answer questions concerning information technology (IT), how it affects how we read and write, how we teach literacy, and how we define literacy practices and integrate these practices into the classroom. This compilation of articles from the Australian Literacy Educators' Association features authors from Australia, the United States, and the United Kingdom and covers a wide range of topics concerning literacy and technology including:

- a history and overview of the research in the field of literacy and technology studies;
- findings from a study of classroom computer use for literacy purposes along with teachers' reactions and experiences;
- an in-depth explanation of the Internet and how to use it as a productive resource for the practice of critical literacy in the classroom;
- concerns about the safe use of the Internet, responsibility for student access, acceptable use policies, and the role of teacher-librarians in a networked school; and
- practical advice about how to coordinate, evaluate, and select CD-ROMs for the classroom, school library, and technology center.

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Book Club selection January 1999

ISBN 0-87207-198-7